

### Claims

1           1. A substantially pure preparation of AGE-1 polypeptide or a fragment  
2 thereof, the polypeptide having at least 50% amino acid sequence identity to the  
3 polypeptide of Figure 6 (SEQ ID NO: 1).

1           2. The polypeptide of claim 1, wherein said AGE-1 polypeptide includes  
2 identical amino acids in equivalent positions to 50% of the following amino acids of  
3 Figure 6 (SEQ ID NO: 1): Gly-32, Leu-73, His-78, Phe-81, Glu-109, Phe-114, Leu-123,  
4 Leu-125, Phe-129, Lys-181, Ser-208, Lys-211, Arg-321, Leu-325, Leu-351, Ser-355,  
5 Met-373, Leu-381, Leu-393, Thr-432, Tyr-451, Glu-475, Pro-507, Ile-514, Gly-518, Glu-  
6 530, Val-538, Leu-582, Tyr-606, Pro-643, Phe-665, Leu-744, Leu-745, Arg-762, Leu-  
7 789, Arg-794, Ala-827, Arg-829, Trp-835, Ser-842, Asn-905, Gly-917, Asp-975, Ile-990,  
8 Asp-1006, His-1020, Lys-1104, Thr-1105, Gly-1130, Phe-1140, and Lys-1144.

1           3. The polypeptide of claim 1, wherein said AGE-1 polypeptide includes an  
2 alanine at equivalent amino acid 827.

1           4. The polypeptide of claim 1, wherein said AGE-1 polypeptide is derived  
2 from an animal.

1           5. The polypeptide of claim 4, wherein said animal is *C. elegans*.

1           6. The polypeptide of claim 4, wherein said animal is a mammal.

1           7. The polypeptide of claim 6, wherein said mammal is a human.

Sub 1  
B 1  
1 8. A purified DNA which encodes an AGE-1 polypeptide of claim 1.

1 9. A purified DNA comprising an AGE-1 nucleic acid sequence which is at  
2 least 30% identical to the nucleic acid sequence of Figure 4 (SEQ ID NO: 2).

Sub C2  
1 10. A vector comprising the purified AGE-1 DNA of claim 8 or 9.

Sub B32  
1 11. A cell comprising the purified AGE-1 DNA of claim 8 or 9.

1 12. A method of producing a recombinant AGE-1 polypeptide, said method  
2 comprising the steps of:

3 (a) providing a cell transformed with the DNA of claim 8 or 9 encoding an  
4 AGE-1 polypeptide positioned for expression in the cell;

5 (b) culturing the transformed cell under conditions for expressing the DNA;

6 and

7 (c) isolating the recombinant AGE-1 polypeptide.

1 13. A recombinant AGE-1 polypeptide produced according to the method  
2 of claim 12.

1 14. A substantially pure antibody that specifically recognizes and binds to  
2 an AGE-1 polypeptide.

Sub C3  
1 15. A method of identifying an AGE-1 modulatory compound that is  
2 capable of decreasing the expression of an AGE-1 gene, said method comprising the steps  
3 of:

4 (a) providing a cell expressing the AGE-1 DNA of claim 8 or 9; and

1 (b) contacting said cell with a candidate compound, a decrease in AGE-1  
2 expression following contact with said candidate compound identifying a modulatory  
3 compound.

Sub D2  
1 16. A method of identifying an AGE-1 modulatory compound that is  
2 capable of decreasing AGE-1 activity, said method comprising the steps of:

3 (a) providing a cell expressing an AGE-1 polypeptide; and

4 (b) contacting the cell with a candidate compound, a decrease in AGE-1  
5 activity following contact with the candidate compound identifying a modulatory  
6 compound.

1 17. The method of claim 15 or 16, wherein said AGE-1 gene encodes or  
2 AGE-1 polypeptide includes an amino acid sequence that is at least 50% identical to the  
3 amino acid sequence shown in Fig. 6 (SEQ ID NO: 1).

Sub B3  
1 18. The method of claim 15 or 16, wherein said AGE-1 gene or AGE-1  
2 polypeptide is from an animal

Sub C4  
1 19. The method of claim 15 or 16, wherein said method is carried out in a  
2 nematode or other animal

Sub B4  
1 20. The method of claim 15 or 16, wherein said method involves assaying  
2 AGE-1 activity *in vitro*.

1 21. An AGE-1 modulatory compound identified by the method of claim 15.

1 22. An AGE-1 modulatory compound identified by the method of claim 16.

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1           23. A method for increasing longevity in a mammal, said method  
2 comprising administering a therapeutically effective amount of the compound of claim 21  
3 or 22 to a mammal.

1           24. A method of determining the longevity of an animal, comprising  
2 measuring AGE-1 gene expression or AGE-1 activity in a sample from the animal, with a  
3 decrease in AGE-1 expression or activity relative to a wild-type sample being an  
4 indication that the animal has increased longevity.

1           25. The method of claim 24, wherein said animal is a mammal

1           26. The method of claim 24, wherein said mammal is a human.

1           27. The method of claim 24, wherein AGE-1 gene expression is measured  
2 by assaying the amount of AGE-1 polypeptide in said sample.

1           28. The method of claim 24, wherein said method involves assaying kinase  
2 activity.

*add  
B*